

**REMARKS**

The Examiner is thanked for the due consideration given the application.

Claims 25-27, 29-39 and 41-46 are pending in the application. Claims 28 and 40 have been canceled and their subject matter has been generally incorporated into claims 25 and 37, respectively. Support for the amendments to independent claims 25 and 37 also can be found page 13, lines 9-23 of the specification. The claims have also been amended to improve their language.

No new matter is believed to be added to the application by this amendment.

**Claim Objections**

Claim 31 has been objected to as containing informalities. Claim 31 has been amended the formalities.

**Rejection Under 35 USC § 101**

Claim 25 has been rejected under 35 USC § 101 as being drawn to two different statutory classes. This rejection is respectfully traversed.

Claim 25 (and its dependent claims) has been amended to be clearly drawn to a method. As a result, claim 25 and its dependent claims fall within the aegis 35 USC § 101.

This rejection is believed to be overcome and withdrawal thereof is respectfully requested.

**Rejection Under 35 USC § 112, Second Paragraph**

Claims 25-27, 29-31, 33-39, 41, 43, 44 and 46 have been rejected under 35 USC § 112, second paragraph as being indefinite. This rejection is respectfully traversed.

The comments in the Official Action have been considered, and the claims have been amended to be clear, definite and have full antecedent basis.

However, it is noted in same cases (such as "analog signals" in claims 31 and 41), the antecedent basis was proper. Also, it is believed that the fault detection circuit set forth in claims 31 and 41 has a clear relationship to the measurement and inspection arrangement in the base claims.

Also, the concept of "driving" an electronic component is well known in the art and would be recognized by one of skill. For example, According to the Oxford Dictionary of English Language:

*drive* → [with obj] *Electronics (of a device) power or operate (another device): the interface can be used to drive a printer.*

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.

Rejections Based on KREUZER et al.

Claims 25, 26, 29, 30, 32, 33, 34, 35, 37, 38, 42, 43, 44 and 45 have been rejected under 35 USC § 102(b) as being anticipated by KREUZER et al. (U.S. Patent 4,937,449). Claims 27 and 39 have been rejected under 35 USC § 103(a) as being unpatentable over KREUZER et al. in view of KOBAYASHI et al. (U.S. Patent 5,245,671). Claims 28 and 40 have been rejected under 35 USC § 103(a) as being unpatentable over KREUZER et al. in view of MITCHELL et al. (U.S. Publication 2002/0020818). These rejections are respectfully traversed.

The present invention pertains to an optical measurement and inspection arrangement that is illustrated, by way of example, in Figure 5 of the application, which is reproduced below.

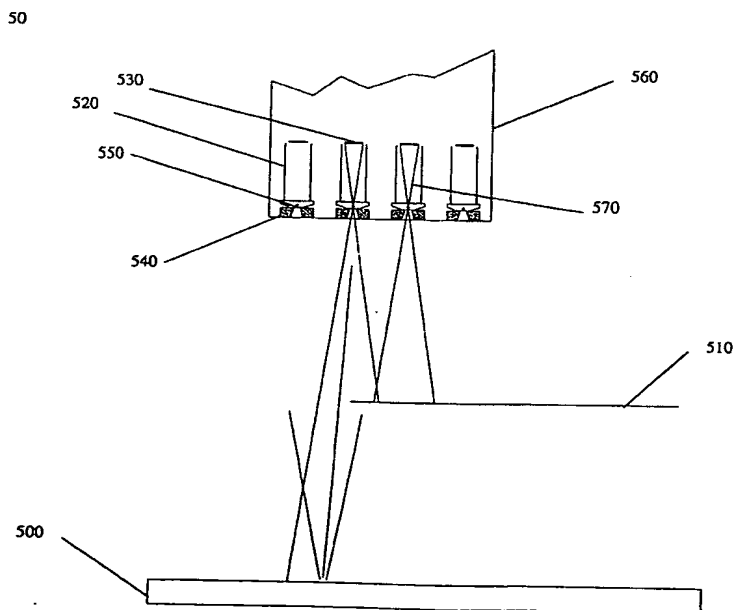


Fig 5.

Figure 5 shows light detectors 570 in detector module 560. Each detector can have a field of view that can overlap with an adjacent detector.

One aspect of the present invention is the utilization of a common carrier waveform AC voltage signal having a fixed frequency, and a symmetrical 50% duty cycle square wave signal is processed from a common carrier waveform signal and carries equal frequency and phase in terms of zero crossings.

Independent claim 25 of the present invention recites: "fixing a common carrier waveform AC voltage signal in frequency, and a symmetrical 50% duty cycle square wave signal is processed from a common carrier waveform signal and carries equal frequency and phase in terms of zero-crossings," and "the symmetrical square wave signal, processed from the common carrier waveform signal, is used for rectifying photocurrent signal, - at least one DC component is removed from the photocurrent signal." Independent claim 25 of the present invention also recites: "at least one said carrier waveform signal is a sine wave, cosine wave, or a square wave signal." Independent claim 37 of the present invention includes similar recitations.

KREUZER et al. pertain to a device for the inspection of the quality of preferably sheet-shaped uncoated or coated films by optoelectronic means. The Official Action refers to Figure 1 of KREUZER et al., which is reproduced below.

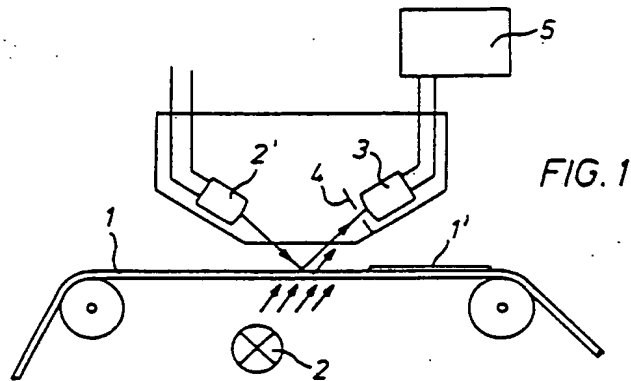


Figure 1 of KREUZER et al. shows light sources 2, 21 and a receiver 3. The Official Action refers to columns 3 and 4 of KREUZER et al. which frequency modulation and signal amplification.

However, the present invention differs from KREUZER et al. in that:

1) the common carrier waveform AC voltage signal is fixed in frequency, and a symmetrical 50% duty cycle square wave signal, is processed from the common carrier waveform signal and carries equal frequency and phase in term of zero-crossings,

2) at least two rays of light are converted to photocurrent (240), and the symmetrical square wave signal, processed from the common carrier waveform signal is used for rectifying photocurrent signal, and

3) at least one DC component is removed from the photocurrent signal.

The problem solved by these features is to reduce the noise, i.e., loudness, caused by unwanted light emitters in the

receiver, and correspondingly increase the signal of desirable light emitters in the light receiver.

The present invention solves this problem by offering an arrangement where the photocurrent detecting faults and properties of the material sheet in the optical system is rectified with a signal that has the same frequency and phase as the carrier frequency that drives the emitter and the receiver.

The noise problem is not disclosed or inferred in KREUZER et al. Neither is it apparent from any other publication.

The other applied art of KOBAYASHI et al. and MITCHELL et al. fail to address the deficiencies of KREUZER et al.

KREUZER et al. thus fails to anticipate a claimed embodiment of the present invention. One of ordinary skill and creativity would fail to produce a claimed embodiment of the present invention from knowledge of KREUZER et al. and KOBAYASHI et al. or MITCHELL et al., and a *prima facie* case of unpatentability has thus not been made.

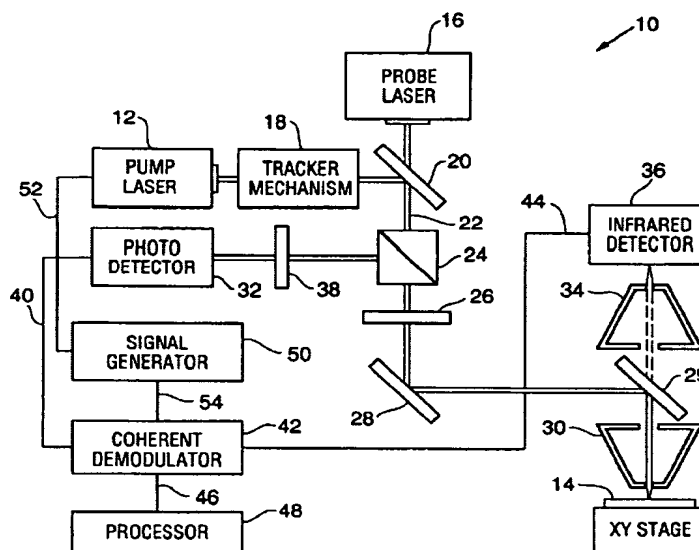
These rejections are believed to be overcome, and withdrawal thereof is respectfully requested.

**Rejection Over NICOLAIDES et al.**

Claims 25, 36, 37 and 46 have been rejected under 35 USC § 103(a) as being unpatentable over NICOLAIDES et al. (U.S. Patent 6,917,039). This rejection is respectfully traversed.

NICOLAIDES et al. pertain to a system for combined photothermal modulated reflectance and radiometry. The Official

Action refers to Figure 1 of NICOLAIDES et al., which is reproduced below.



**FIG. 1**

Figure 1 of NICOLAIDES et al. shows a single probe laser 16, a single photodetector 32, and processing performed by a signal generator 50, a demodulator 42 and a processor 48.

The Official Action acknowledges that NICOLAIDES et al. fail to disclose at least two light emitters driven with a signal generator. The Official Action asserts that utilizing at least two light emitters would be in the ambit of one of ordinary skill.

However, the technology of the present invention is based, in part, on utilizing at least two rays of light emitted by at least two emitters, and analyzing the results of the at least two rays of light when scanning a defect. NICOLAIDES et al. thus fail to recognize the problem that the present invention solves.

Also, similar to KREUZER et al., NICOLAIDES et al. fail to disclose or infer:

1) the common carrier waveform AC voltage signal is fixed in frequency, and a symmetrical 50% duty cycle square wave signal, is processed from the common carrier waveform signal and carries equal frequency and phase in term of zero-crossings,

2) at least two rays of light are converted to photocurrent (240), and the symmetrical square wave signal, processed from the common carrier waveform signal is used for rectifying photocurrent signal, and

3) at least one DC component is removed from the photocurrent signal.

One of ordinary skill and creativity would thus fail to produce a claimed embodiment of the present invention from knowledge of NICOLAIDES et al., and a *prima facie* case of unpatentability has thus not been made.

This rejection is believed to be overcome, and withdrawal thereof is respectfully requested.



CONCLUSION

The Examiner is thanked for considering the Information Disclosure Statement filed August 2, 2005 and for making an initialed PTO-1449 form of record in the application.

Prior art of record but not utilized is believed to be non-pertinent to the instant claims.

The objections and rejections are believed to have been overcome, obviated or rendered moot, and no issues remain. The Examiner is accordingly respectfully requested to place the application in condition for allowance and to issue a Notice of Allowability.

The Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 25-0120 for any additional fees required under 37 C.F.R. § 1.16 or under 37 C.F.R. § 1.17.

Respectfully submitted,

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